FIG.1

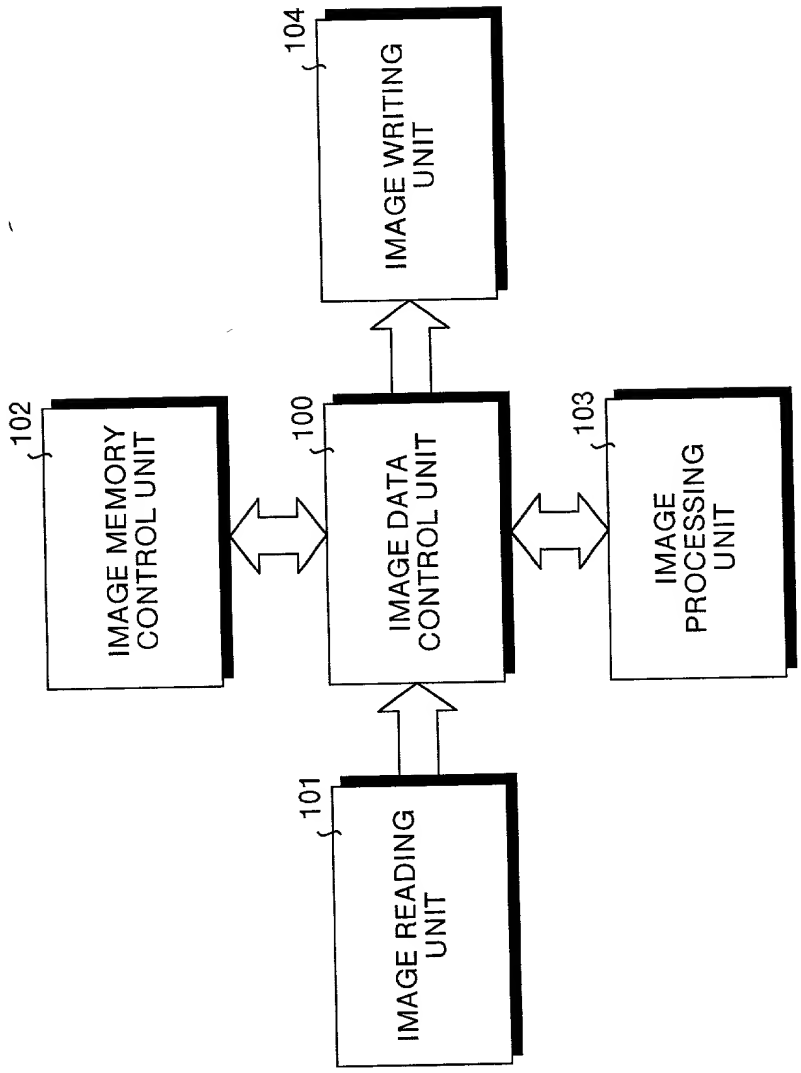
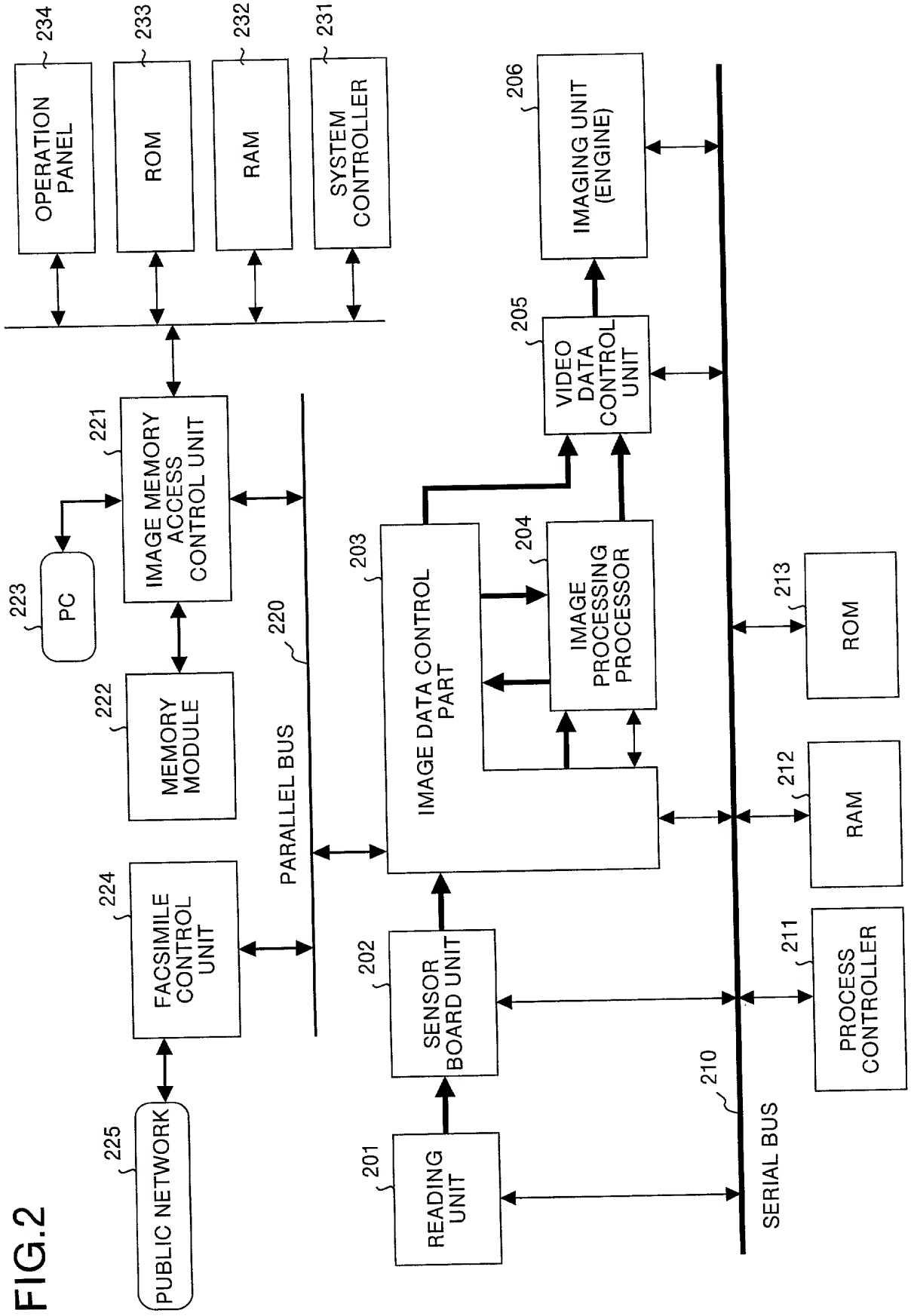

104
IMAGE WRITING UNIT
102
IMAGE MEMORY CONTROL UNIT
100
IMAGE DATA CONTROL UNIT
103
IMAGE PROCESSING UNIT
101
IMAGE READING UNIT

FIG.2


OPERATION PANEL
234
ROM
233
RAM
232
SYSTEM CONTROLLER
231
IMAGING UNIT (ENGINE)
206
VIDEO DATA CONTROL UNIT
205
IMAGE MEMORY ACCESS CONTROL UNIT
221
PC
223
MEMORY MODULE
222
PARALLEL BUS
220
IMAGE DATA CONTROL PART
203
IMAGE PROCESSING PROCESSOR
204
ROM
213
RAM
212
FACSIMILE CONTROL UNIT
224
SENSOR BOARD UNIT
202
PROCESS CONTROLLER
211
PUBLIC NETWORK
225
READING UNIT
201
SERIAL BUS
210

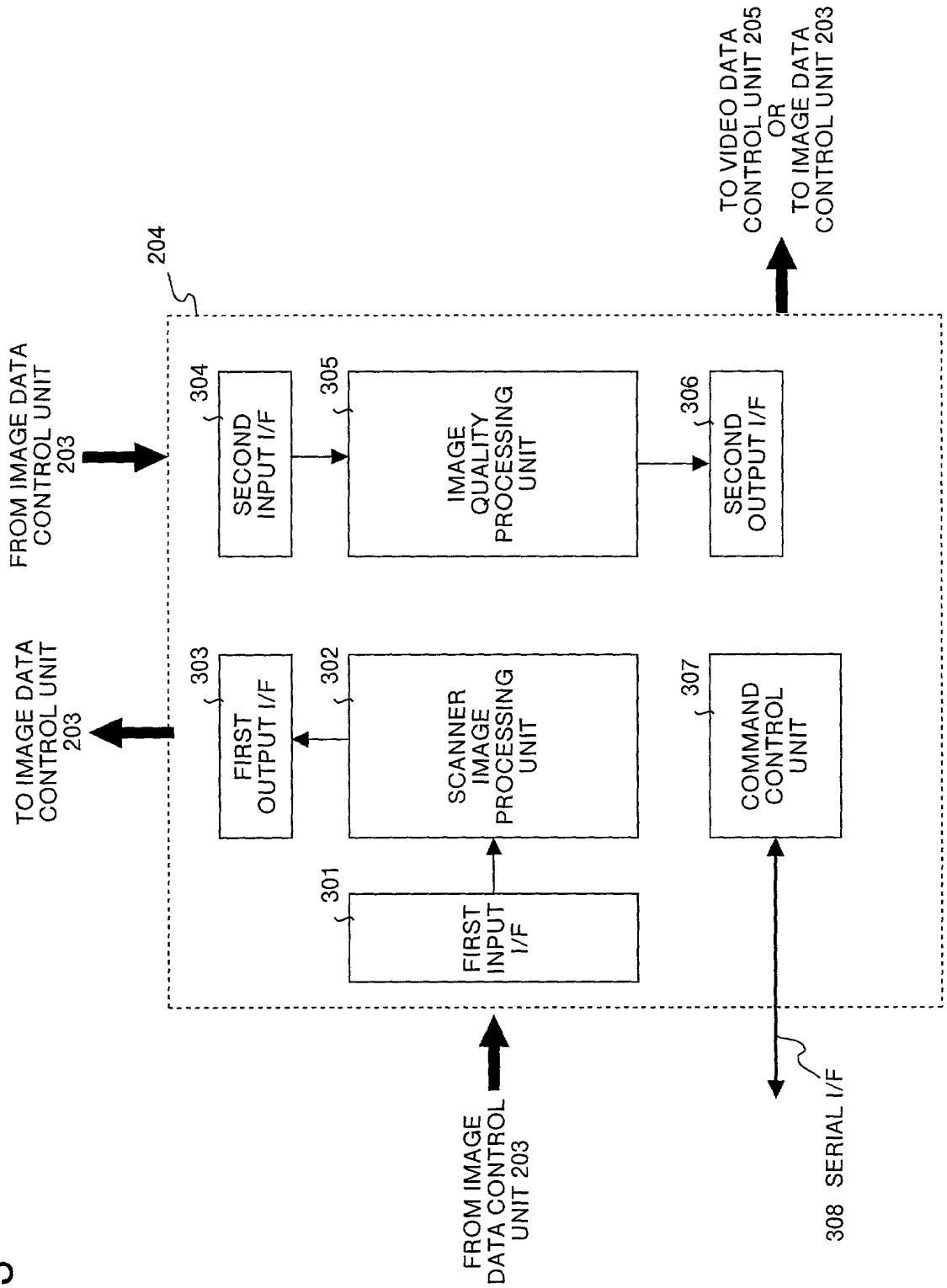

204
FROM IMAGE DATA CONTROL UNIT 203
TO IMAGE DATA CONTROL UNIT 203
TO VIDEO DATA CONTROL UNIT 205 OR TO IMAGE DATA CONTROL UNIT 203
304 SECOND INPUT I/F
305 IMAGE QUALITY PROCESSING UNIT
306 SECOND OUTPUT I/F
303 FIRST OUTPUT I/F
302 SCANNER IMAGE PROCESSING UNIT
307 COMMAND CONTROL UNIT
301 FIRST INPUT I/F
FROM IMAGE DATA CONTROL UNIT 203
308 SERIAL I/F

FIG.3

FIG.4

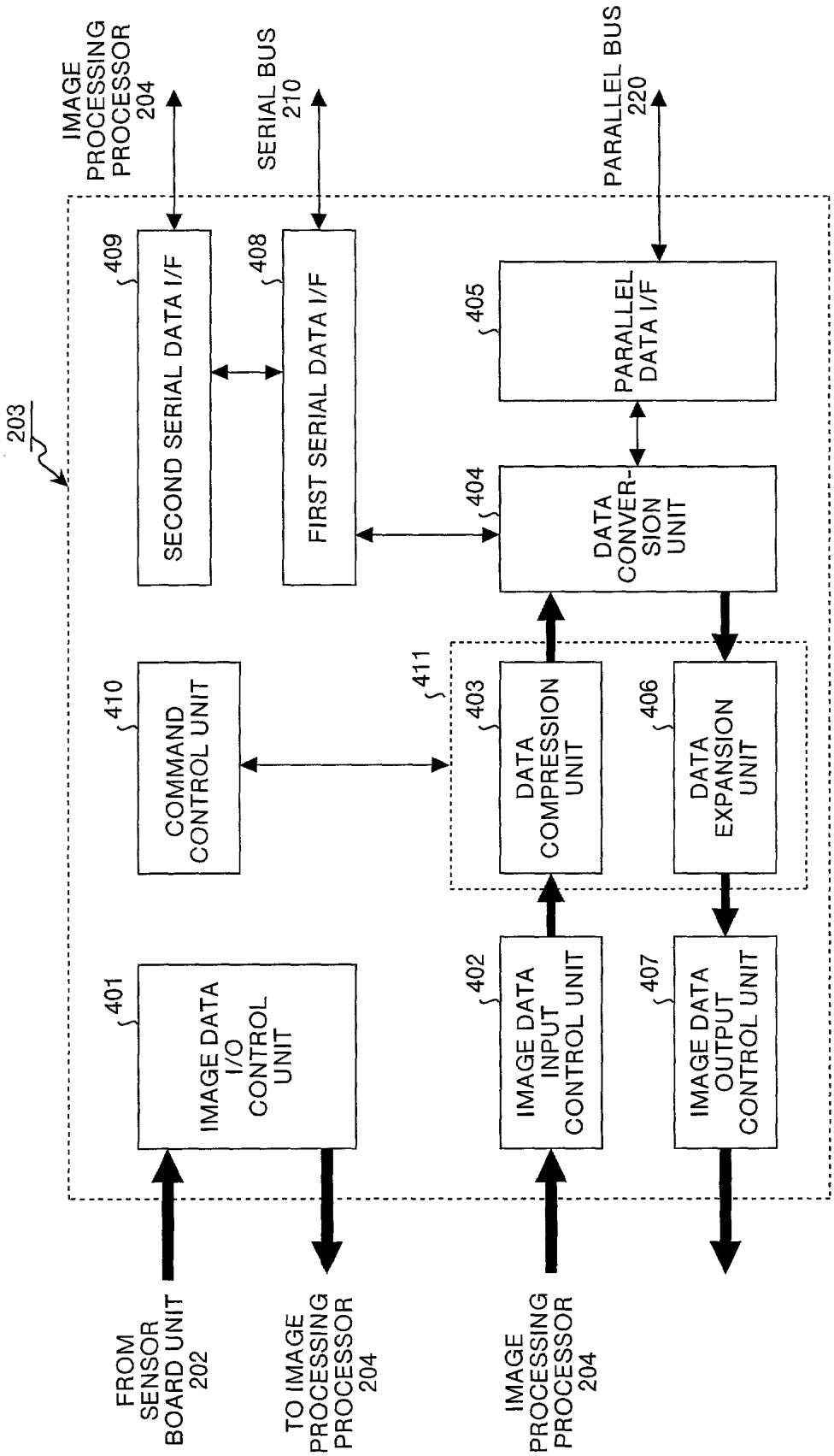


IMAGE PROCESSING PROCESSOR 204
SERIAL BUS 210
PARALLEL BUS 220
203
409
SECOND SERIAL DATA I/F
408
FIRST SERIAL DATA I/F
405
PARALLEL DATA I/F
404
DATA CONVER-SION UNIT
410
COMMAND CONTROL UNIT
411
403
DATA COMPRESSION UNIT
406
DATA EXPANSION UNIT
401
IMAGE DATA I/O CONTROL UNIT
402
IMAGE DATA INPUT CONTROL UNIT
407
IMAGE DATA OUTPUT CONTROL UNIT
FROM SENSOR BOARD UNIT 202
TO IMAGE PROCESSING PROCESSOR 204
IMAGE PROCESSING PROCESSOR 204

FIG.5

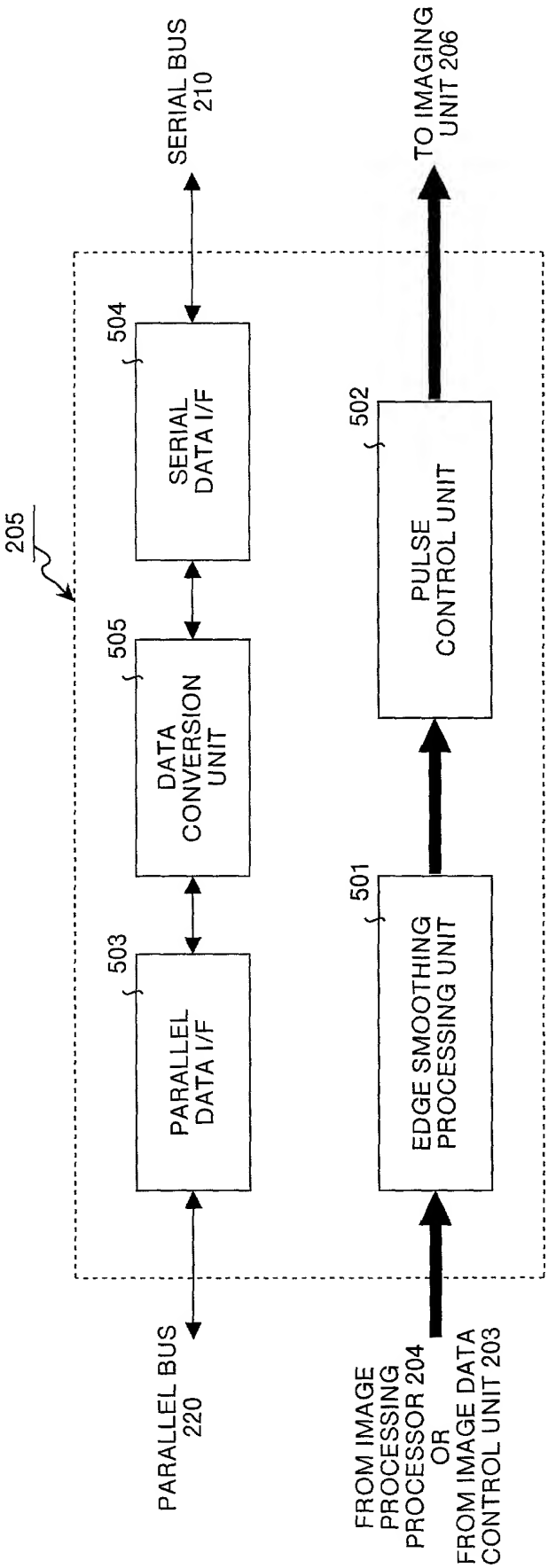

205
SERIAL BUS 210
TO IMAGING UNIT 206
504
SERIAL DATA I/F
505
DATA CONVERSION UNIT
503
PARALLEL DATA I/F
502
PULSE CONTROL UNIT
501
EDGE SMOOTHING PROCESSING UNIT
PARALLEL BUS 220
FROM IMAGE PROCESSING PROCESSOR 204 OR FROM IMAGE DATA CONTROL UNIT 203

FIG.6

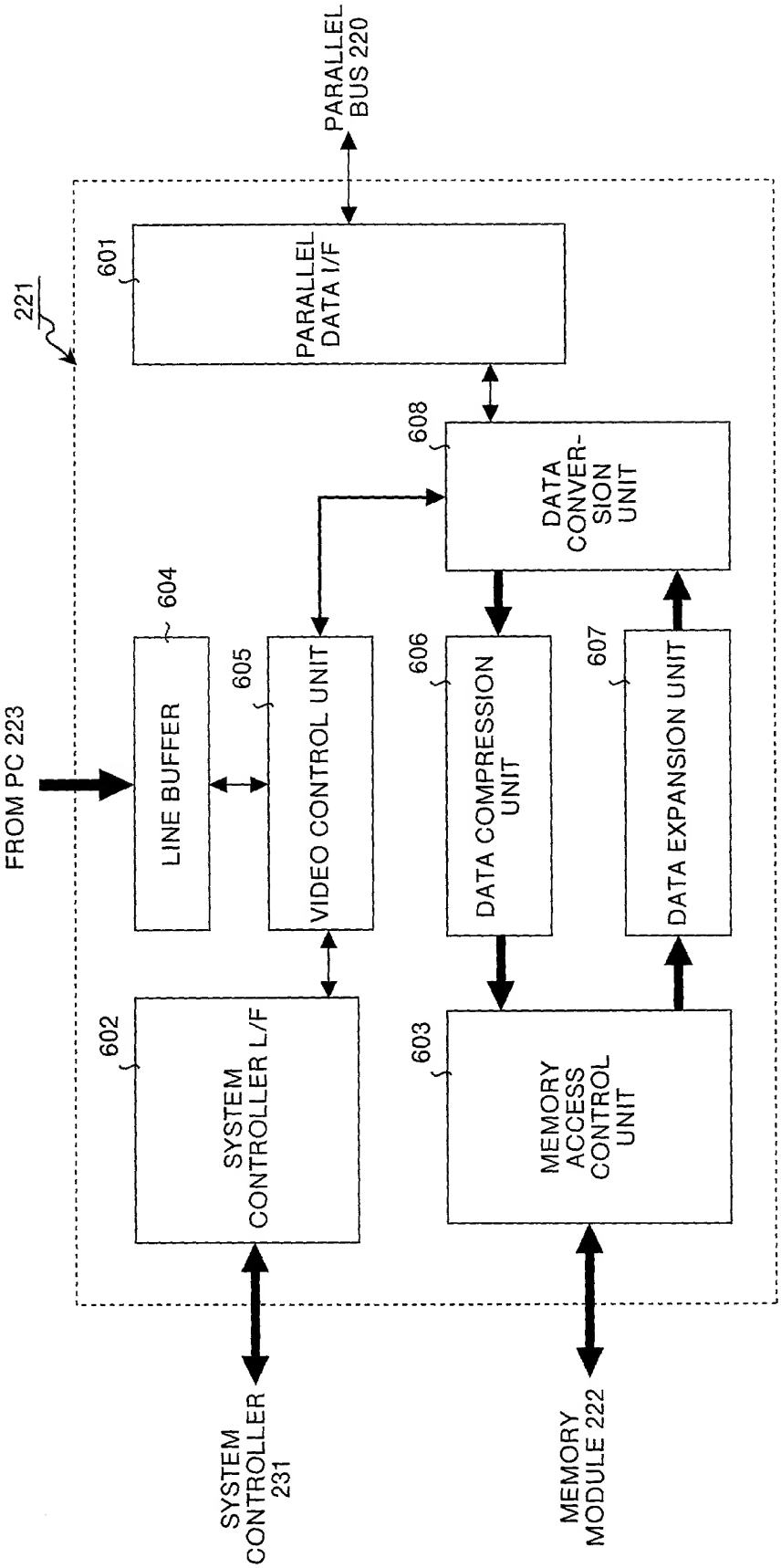

PARALLEL BUS 220
221
601
PARALLEL DATA I/F
608
DATA CONVER-SION UNIT
604
605
606
607
FROM PC 223
LINE BUFFER
VIDEO CONTROL UNIT
DATA COMPRESSION UNIT
DATA EXPANSION UNIT
602
603
SYSTEM CONTROLLER L/F
MEMORY ACCESS CONTROL UNIT
SYSTEM CONTROLLER 231
MEMORY MODULE 222

FIG.7

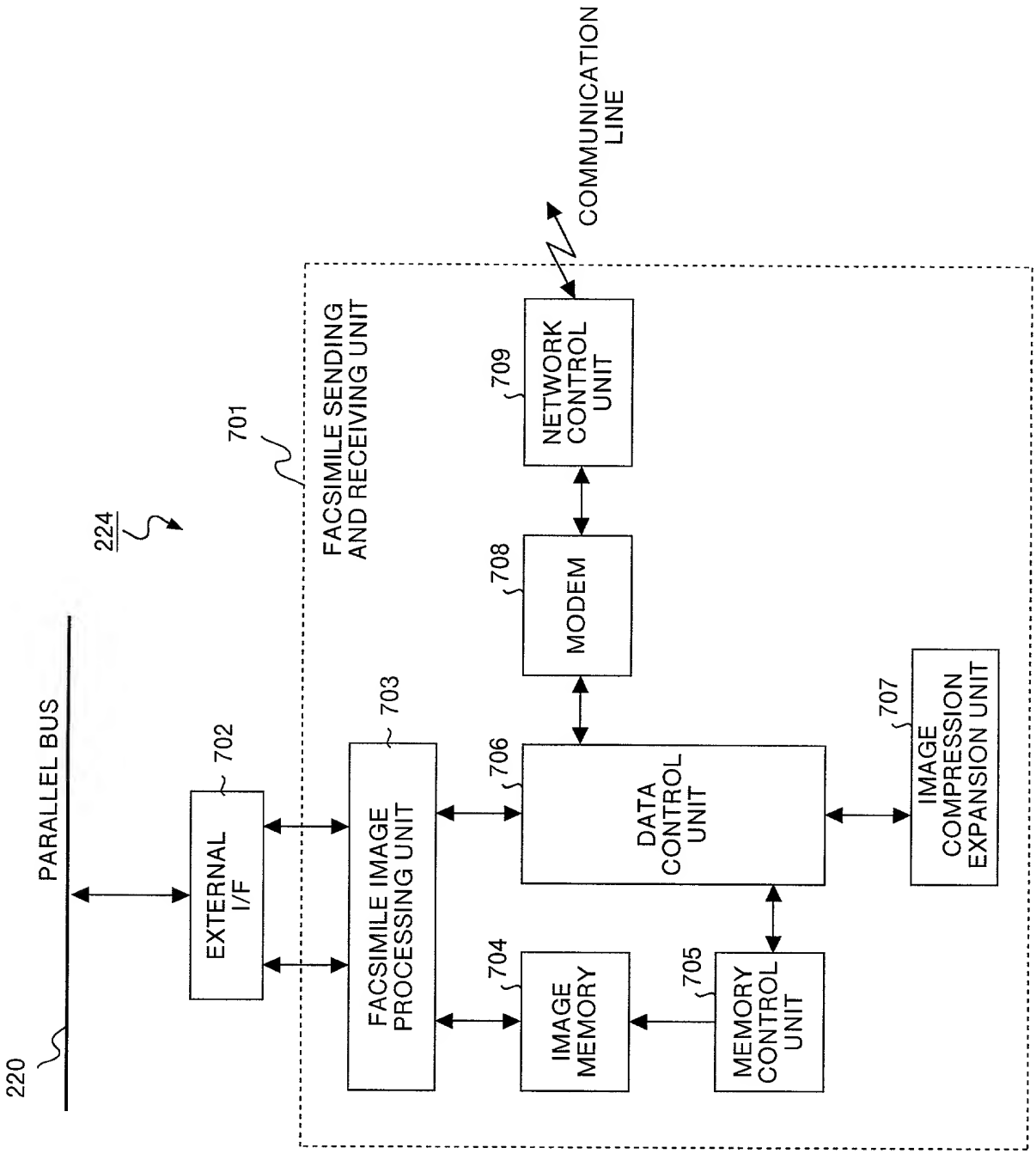

220
PARALLEL BUS
224
701
FACSIMILE SENDING AND RECEIVING UNIT
COMMUNICATION LINE
EXTERNAL I/F
702
FACSIMILE IMAGE PROCESSING UNIT
703
IMAGE MEMORY
704
MEMORY CONTROL UNIT
705
DATA CONTROL UNIT
706
IMAGE COMPRESSION EXPANSION UNIT
707
MODEM
708
NETWORK CONTROL UNIT
709

FIG.8

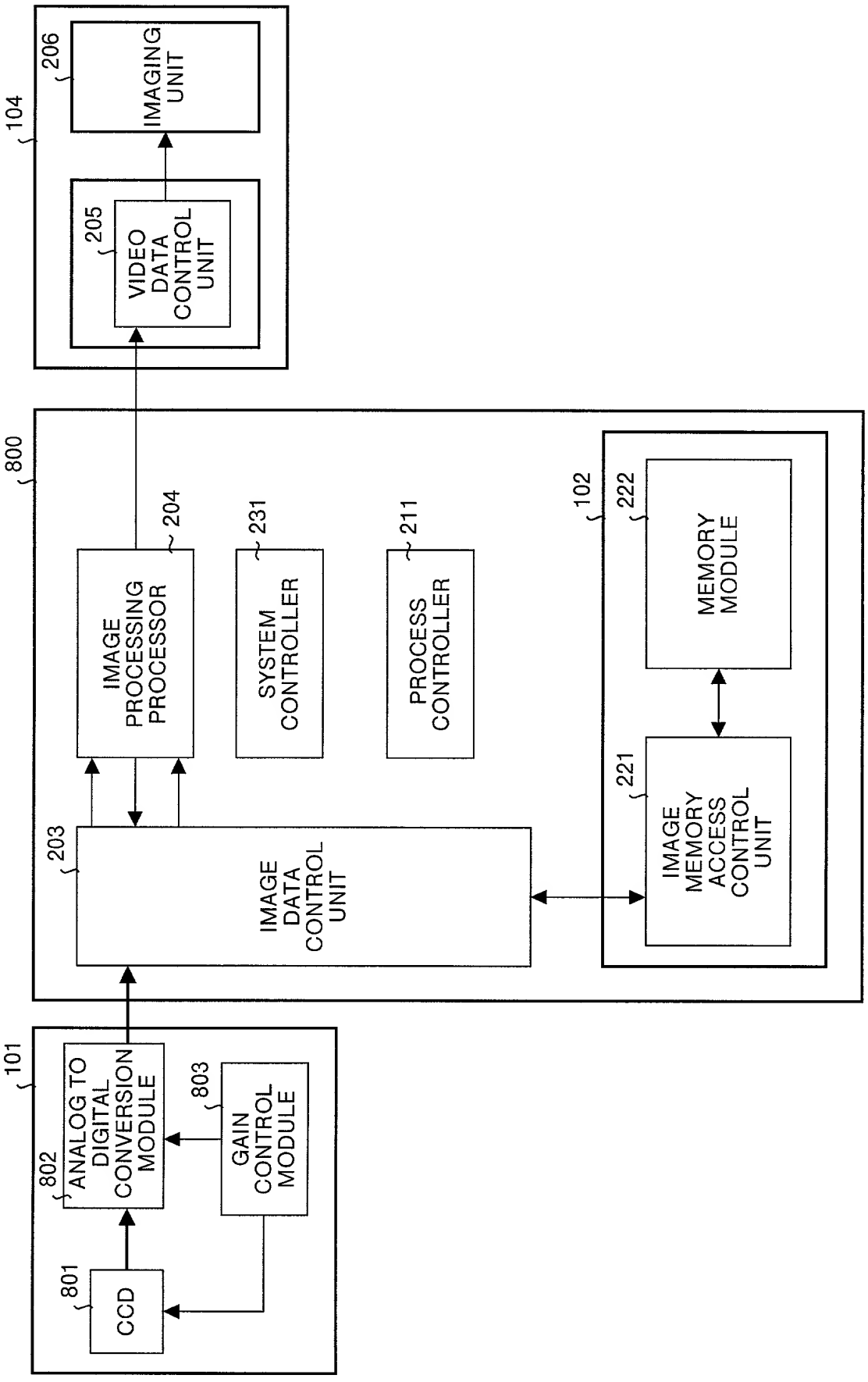
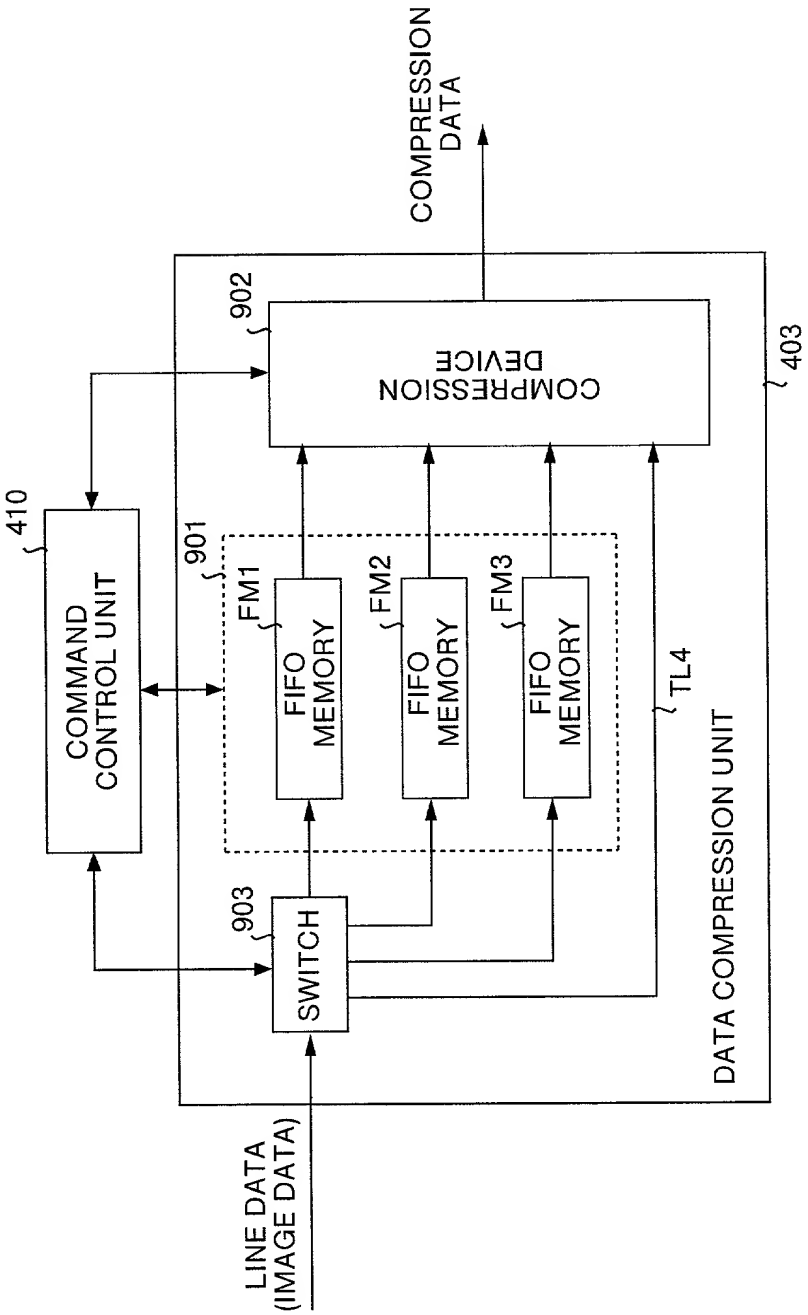

104
206
IMAGING UNIT
205
VIDEO DATA CONTROL UNIT
800
204
IMAGE PROCESSING PROCESSOR
231
SYSTEM CONTROLLER
211
PROCESS CONTROLLER
102
222
MEMORY MODULE
203
IMAGE DATA CONTROL UNIT
221
IMAGE MEMORY ACCESS CONTROL UNIT
101
802
ANALOG TO DIGITAL CONVERSION MODULE
803
GAIN CONTROL MODULE
801
CCD

FIG.9


COMPRESSION DATA
902
COMPRESSION DEVICE
403
410
COMMAND CONTROL UNIT
901
FM1
FIFO MEMORY
FM2
FIFO MEMORY
FM3
FIFO MEMORY
TL4
903
SWITCH
DATA COMPRESSION UNIT
LINE DATA (IMAGE DATA)

OBLON, SPIVAK, ET AL
DOCKET #: 202507US2
INV: Sugitaka OTEKI, et al.
SHEET 10 OF 22

FIG.10

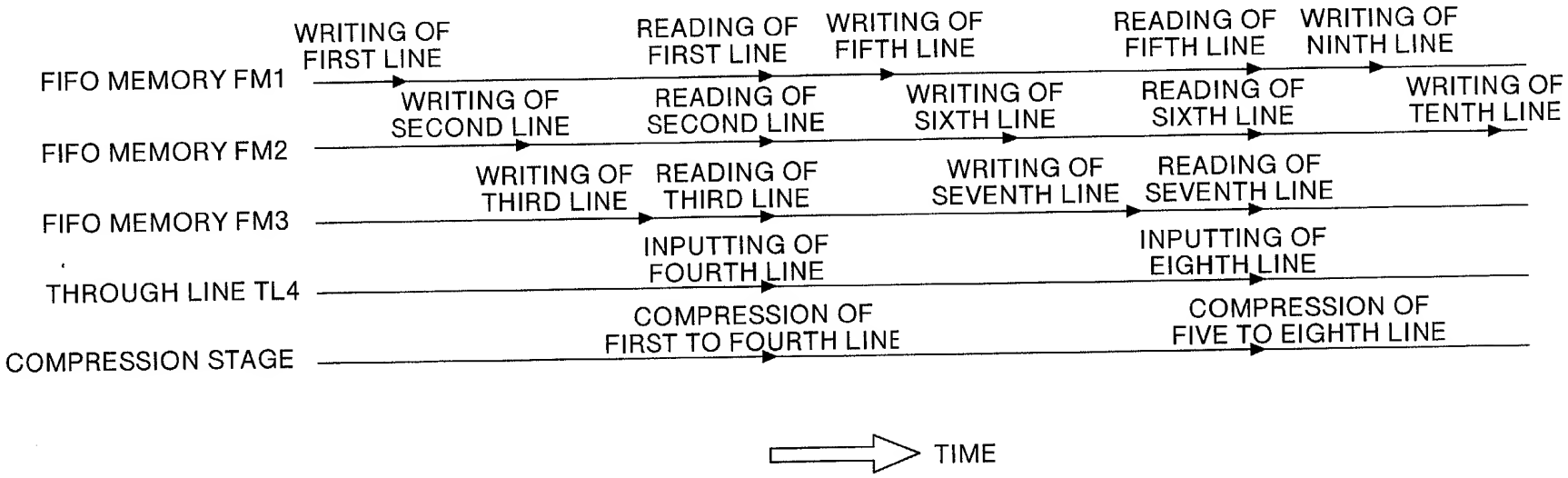
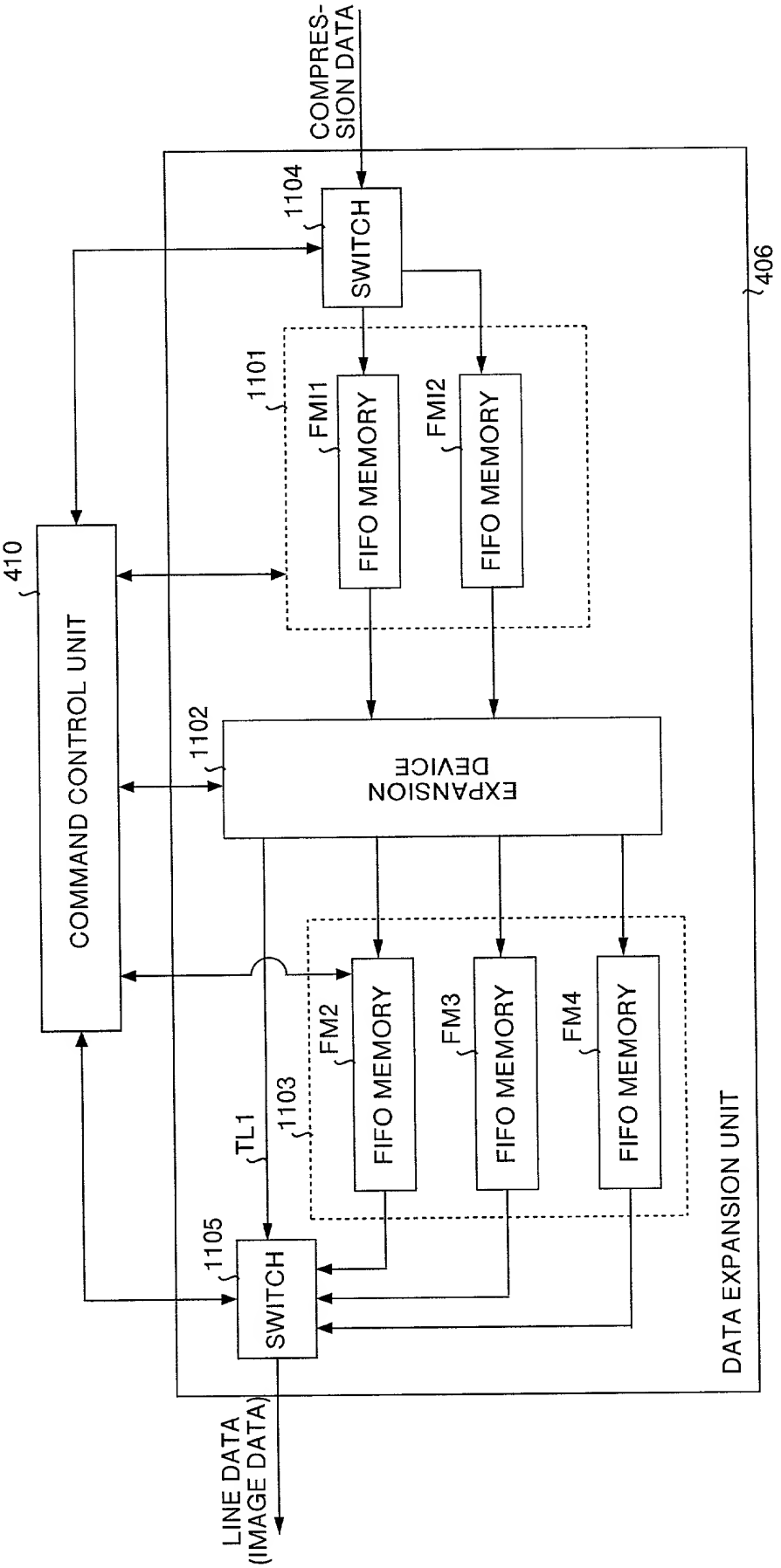


FIG.11


COMPRES-
SION DATA
1104
SWITCH
406
1101
FMI1
FIFO MEMORY
FMI2
FIFO MEMORY
410
COMMAND CONTROL UNIT
1102
EXPANSION
DEVICE
FM2
FIFO MEMORY
FM3
FIFO MEMORY
FM4
FIFO MEMORY
TL1
1103
1105
SWITCH
DATA EXPANSION UNIT
LINE DATA
(IMAGE DATA)

OBLON, SPIVAK, ET AL
DOCKET #: 202507US2
INV: Sugitaka OTEKI, et al.
SHEET 12 OF 22

FIG.12

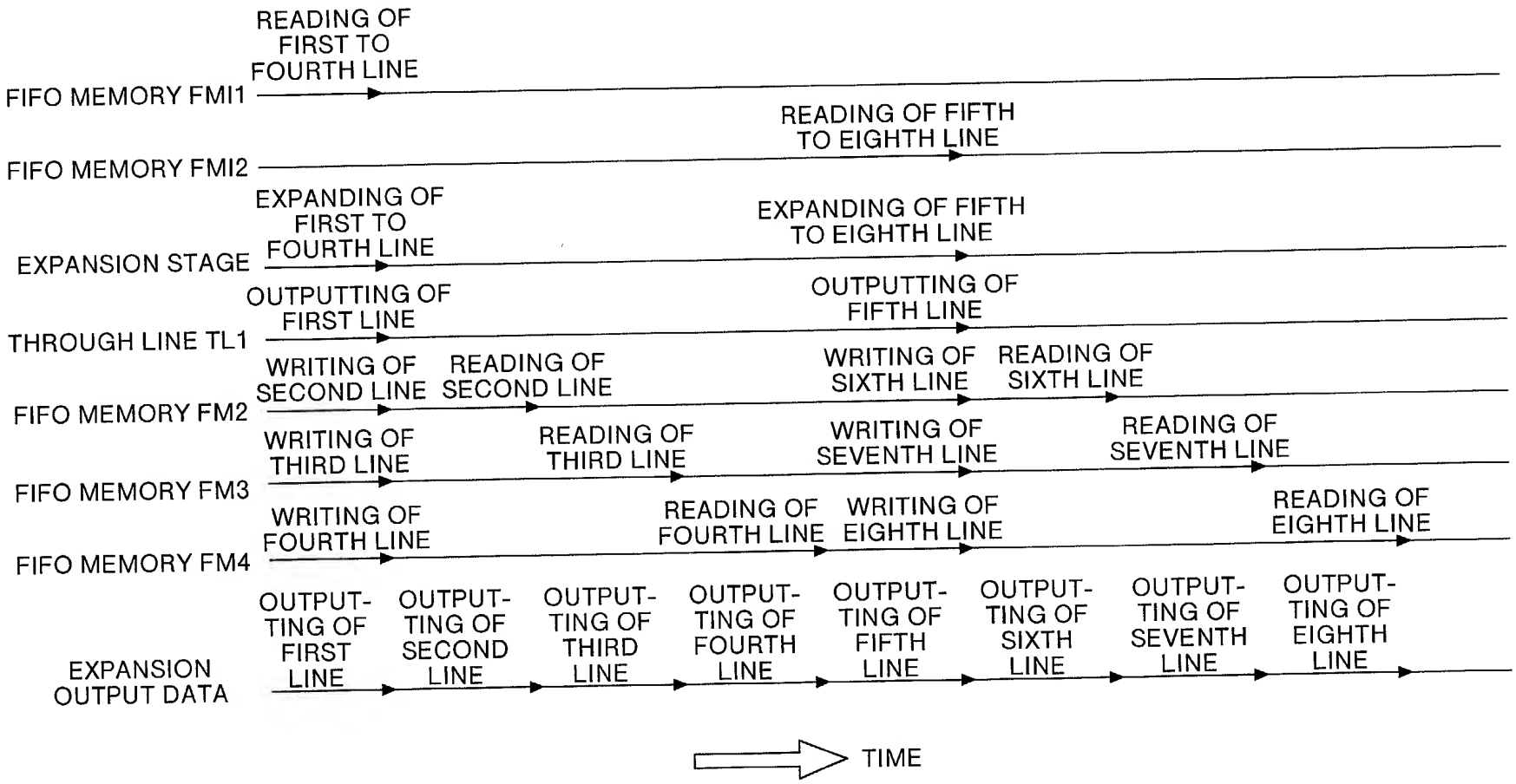


FIG.13

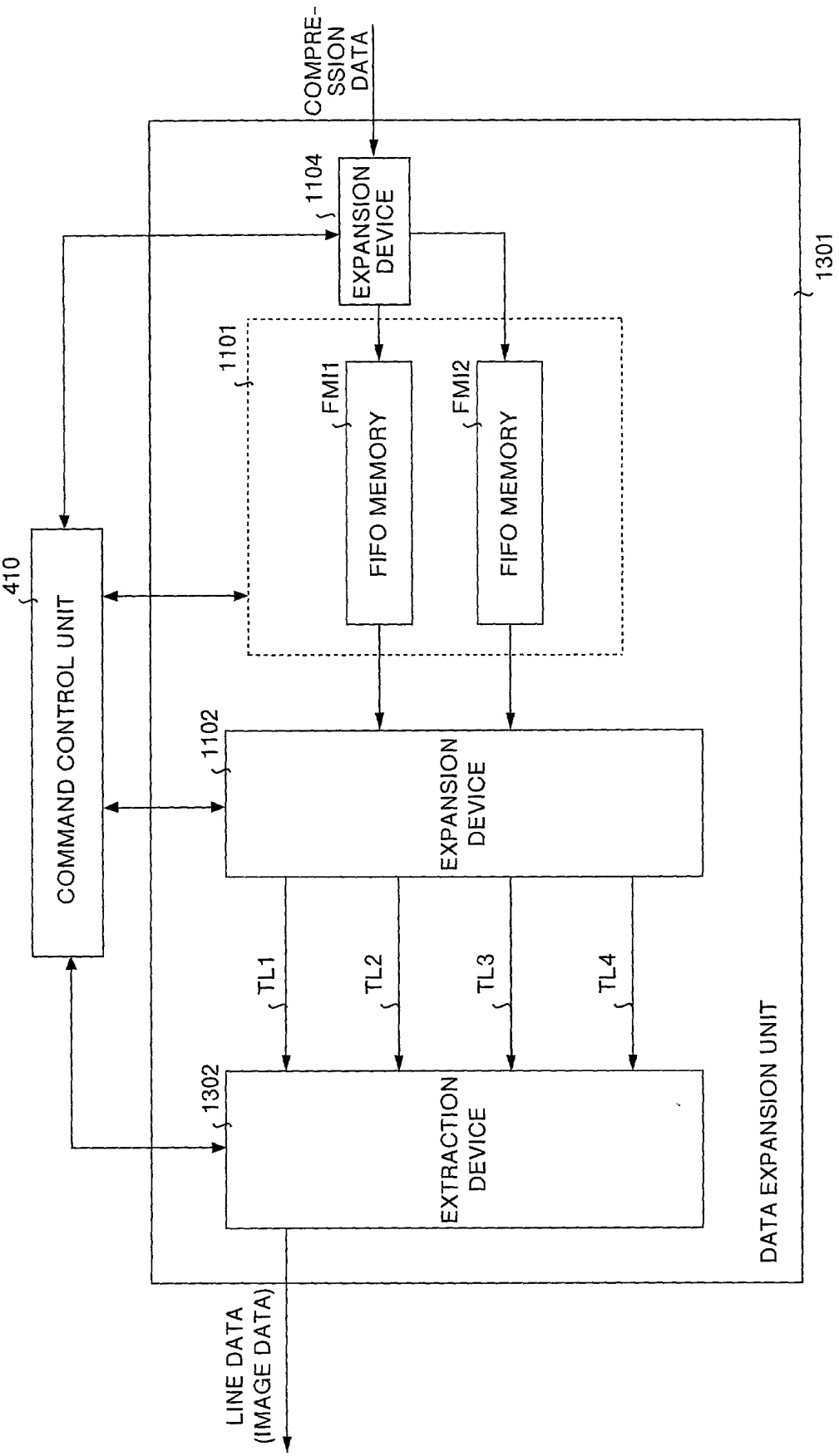
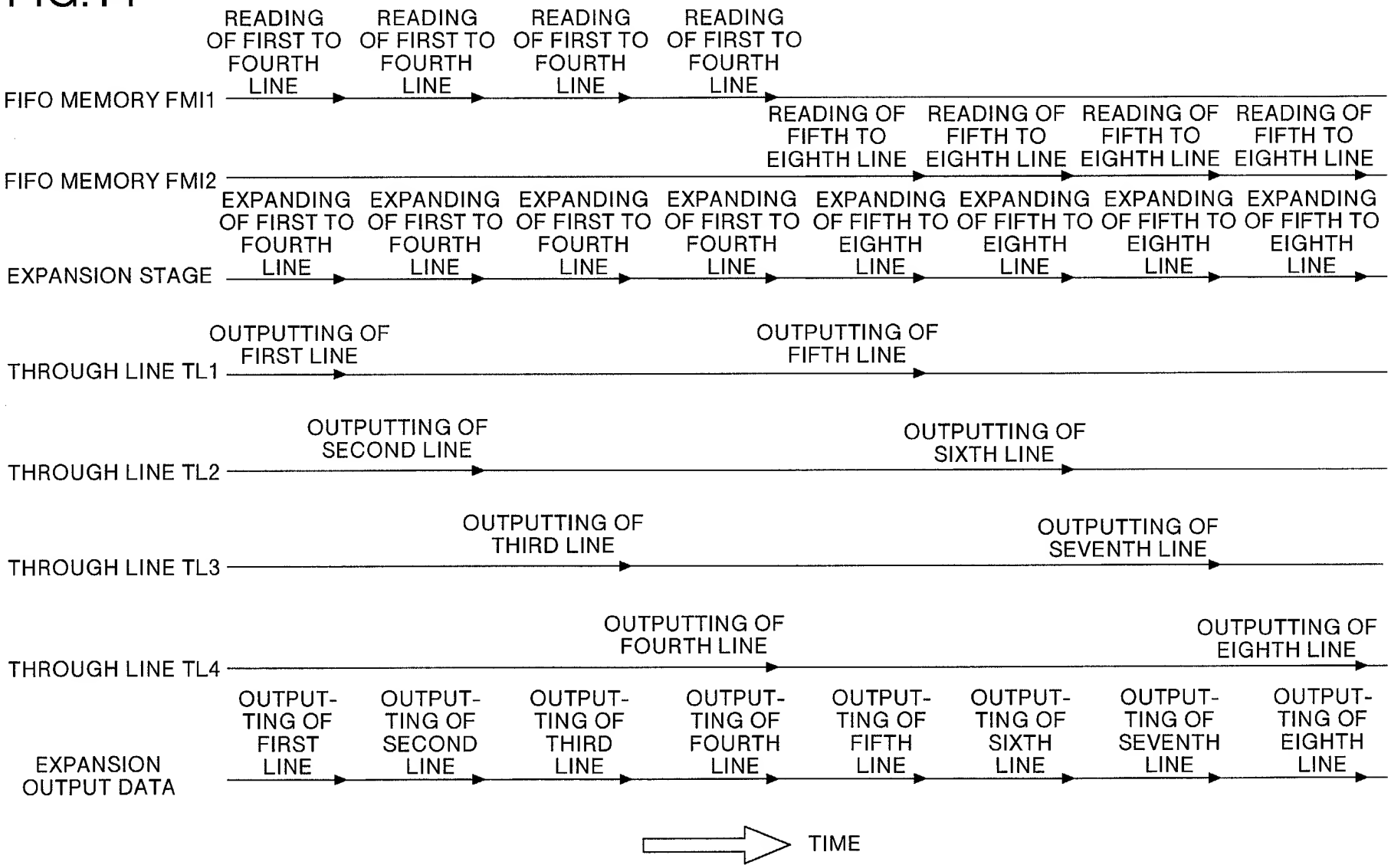
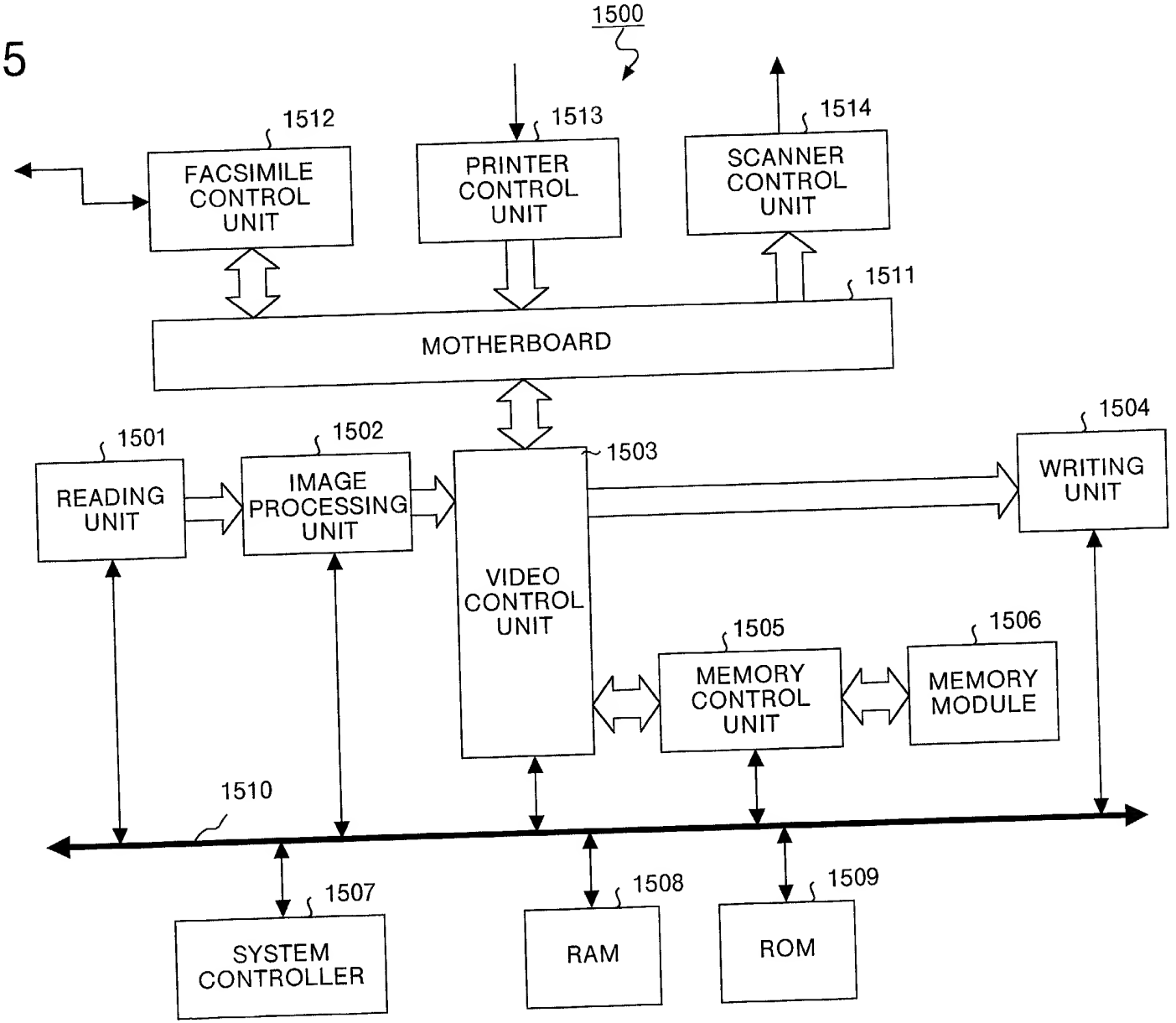

COMPRE-
SSION
DATA
1104
EXPANSION
DEVICE
1301
1101
FMI1
FIFO MEMORY
FMI2
FIFO MEMORY
410
COMMAND CONTROL UNIT
1102
EXPANSION
DEVICE
TL1
TL2
TL3
TL4
1302
EXTRACTION
DEVICE
DATA EXPANSION UNIT
LINE DATA
(IMAGE DATA)

FIG.14



OBLON, SPIVAK, ET AL
DOCKET #: 202507US2
INV: Sugitaka OTEKI, et al.
SHEET 14 OF 22

FIG.15



OBLON, SPIVAK, ET AL
DOCKET #: 202507US2
INV: Sugitaka OTEKI, et al.
SHEET 15 OF 22
15/22

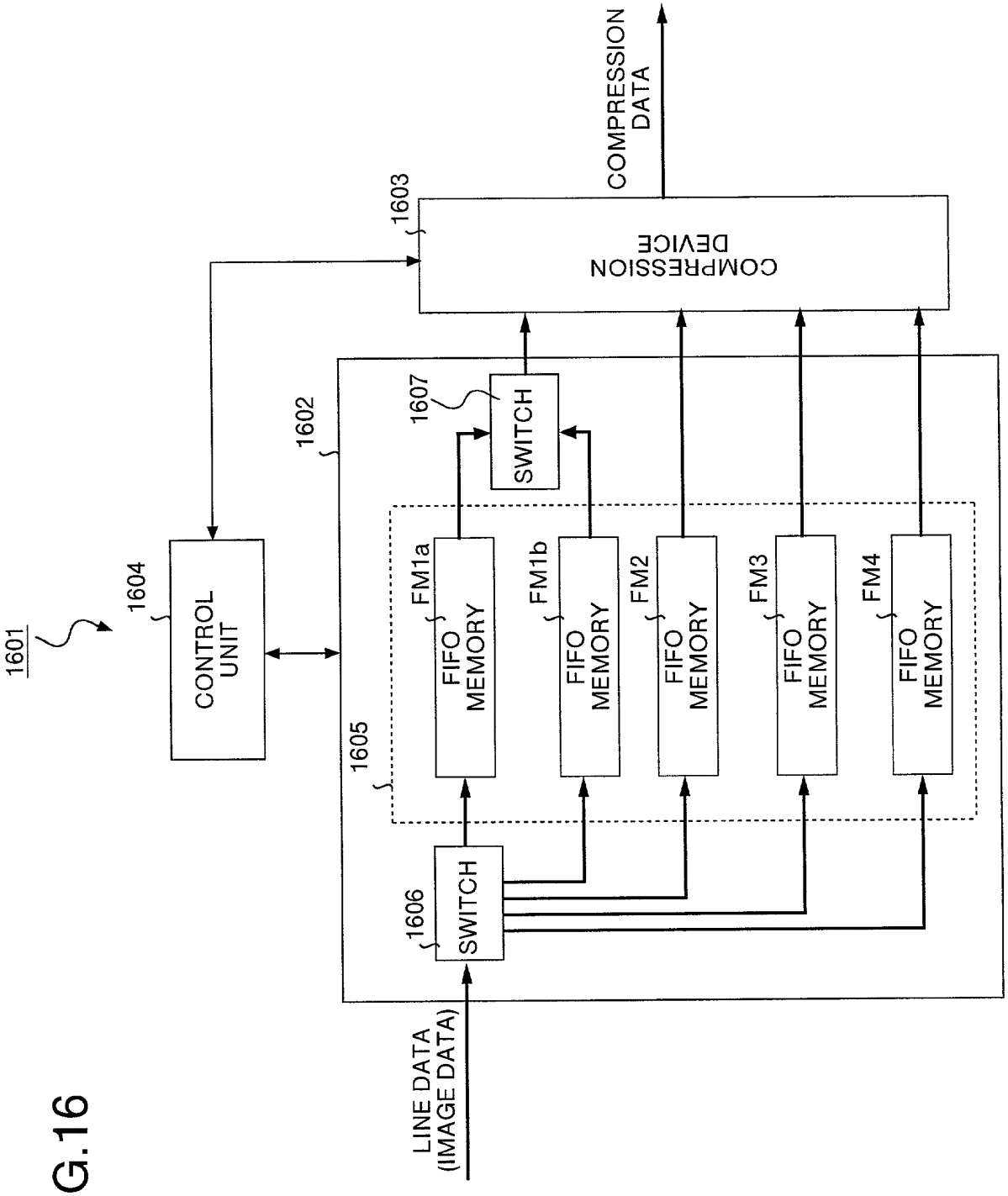
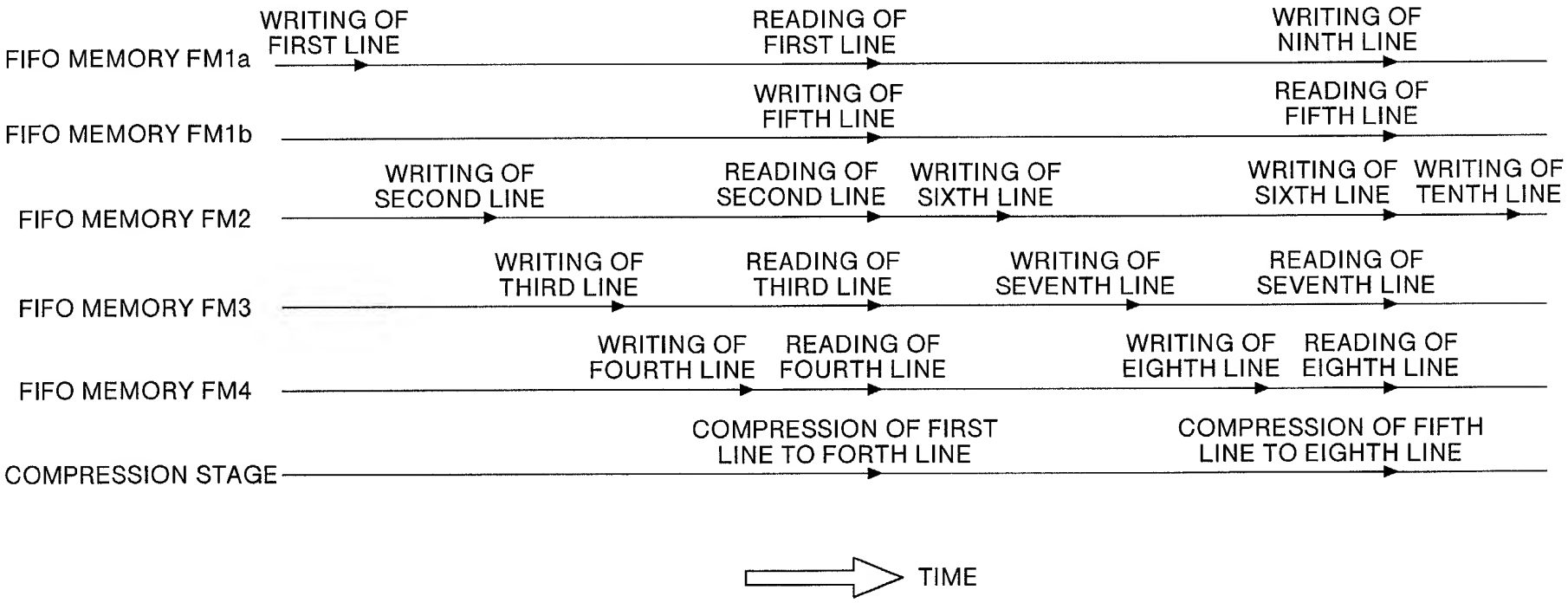

1601
1604
CONTROL UNIT
1602
1603
COMPRESSION DEVICE
COMPRESSION DATA
1607
SWITCH
FM1a
FIFO MEMORY
FM1b
FIFO MEMORY
FM2
FIFO MEMORY
FM3
FIFO MEMORY
FM4
FIFO MEMORY
1605
1606
SWITCH
LINE DATA (IMAGE DATA)

FIG.16

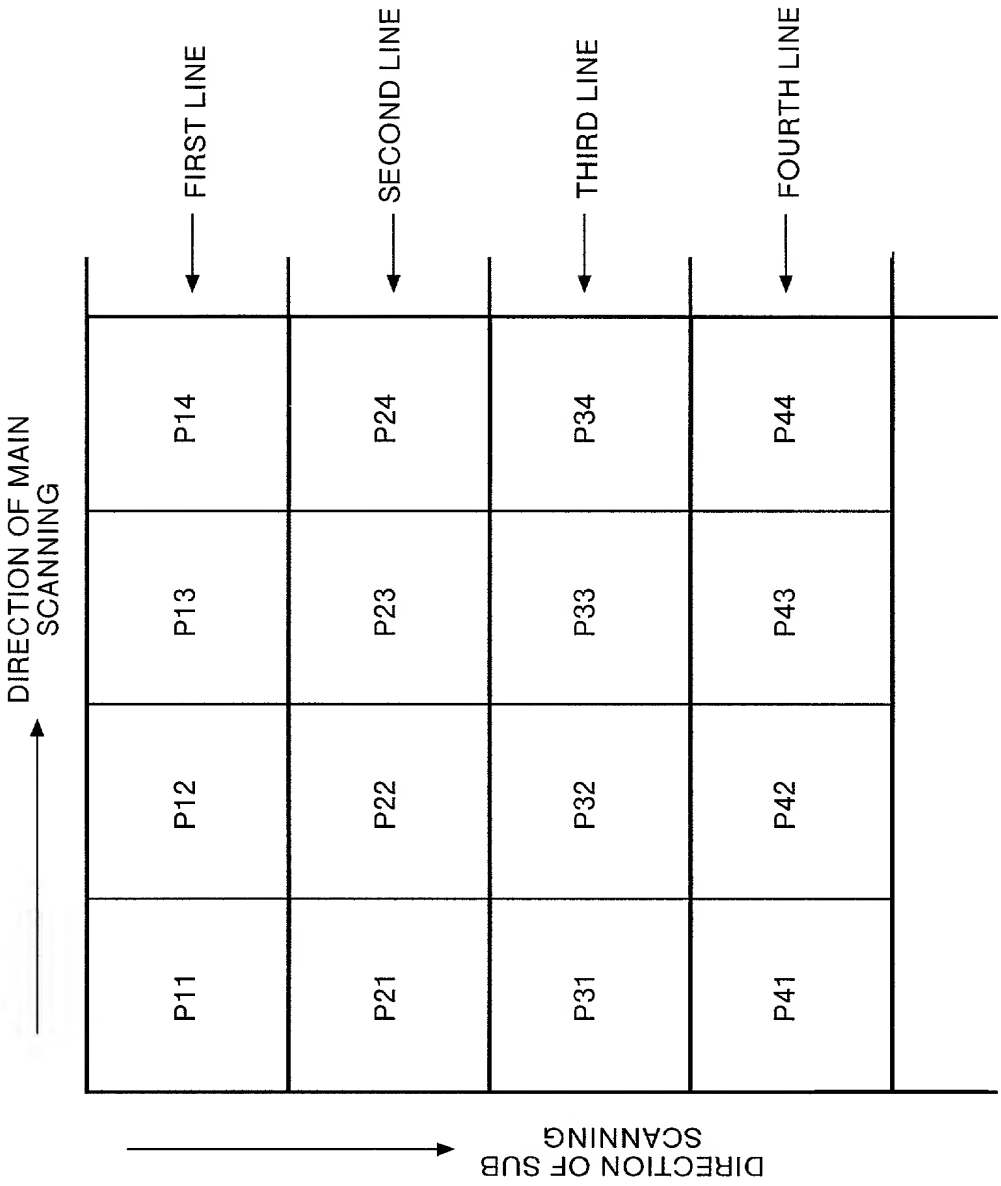
PCT/JP2004/012558

FIG.17



OBLON, SPIVAK, ET AL
DOCKET #: 202507US2
INV: Sugitaka OTEKI, et al.
SHEET 17 OF 22

FIG.18


FIRST LINE
SECOND LINE
THIRD LINE
FOURTH LINE
P14
P24
P34
P44
P13
P23
P33
P43
P12
P22
P32
P42
P11
P21
P31
P41
DIRECTION OF MAIN SCANNING
DIRECTION OF SUB SCANNING

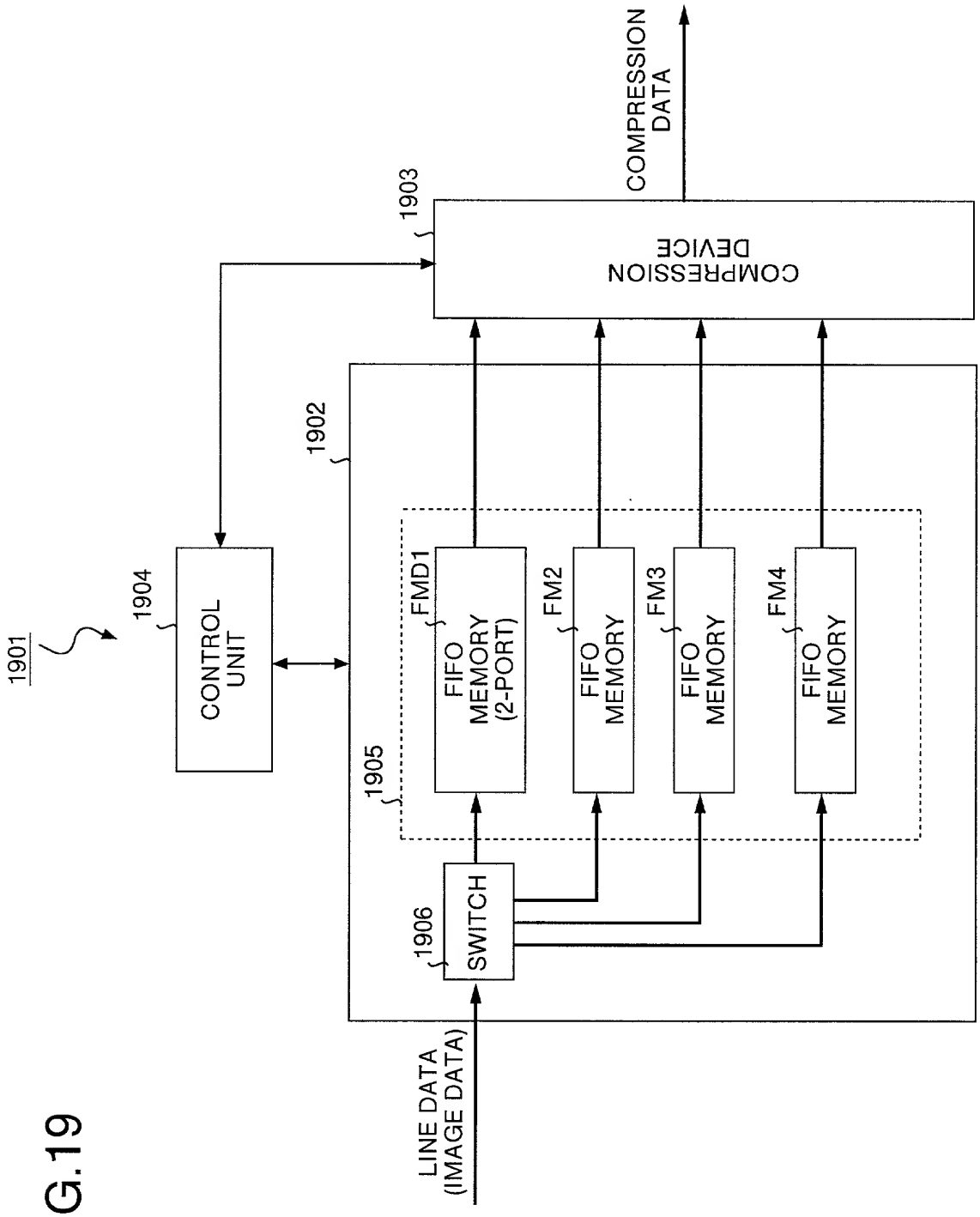

1901
1904
CONTROL UNIT
1902
1903
COMPRESSION DEVICE
COMPRESSION DATA
1905
FMD1
FIFO MEMORY (2-PORT)
FM2
FIFO MEMORY
FM3
FIFO MEMORY
FM4
FIFO MEMORY
1906
SWITCH
LINE DATA (IMAGE DATA)

FIG.19

OBLON, SPIVAK, ET AL
DOCKET #: 202507US2
INV: Sugitaka OTEKI, et al.
SHEET 20 OF 22

FIG.20

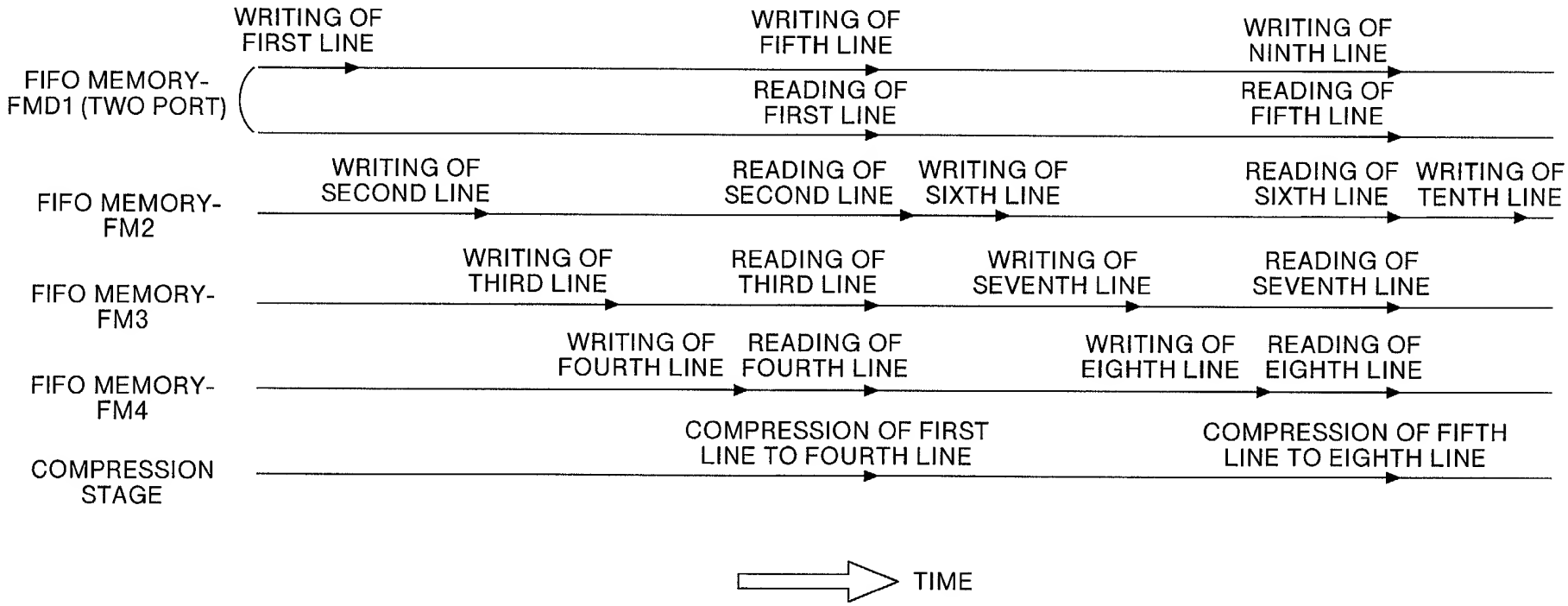
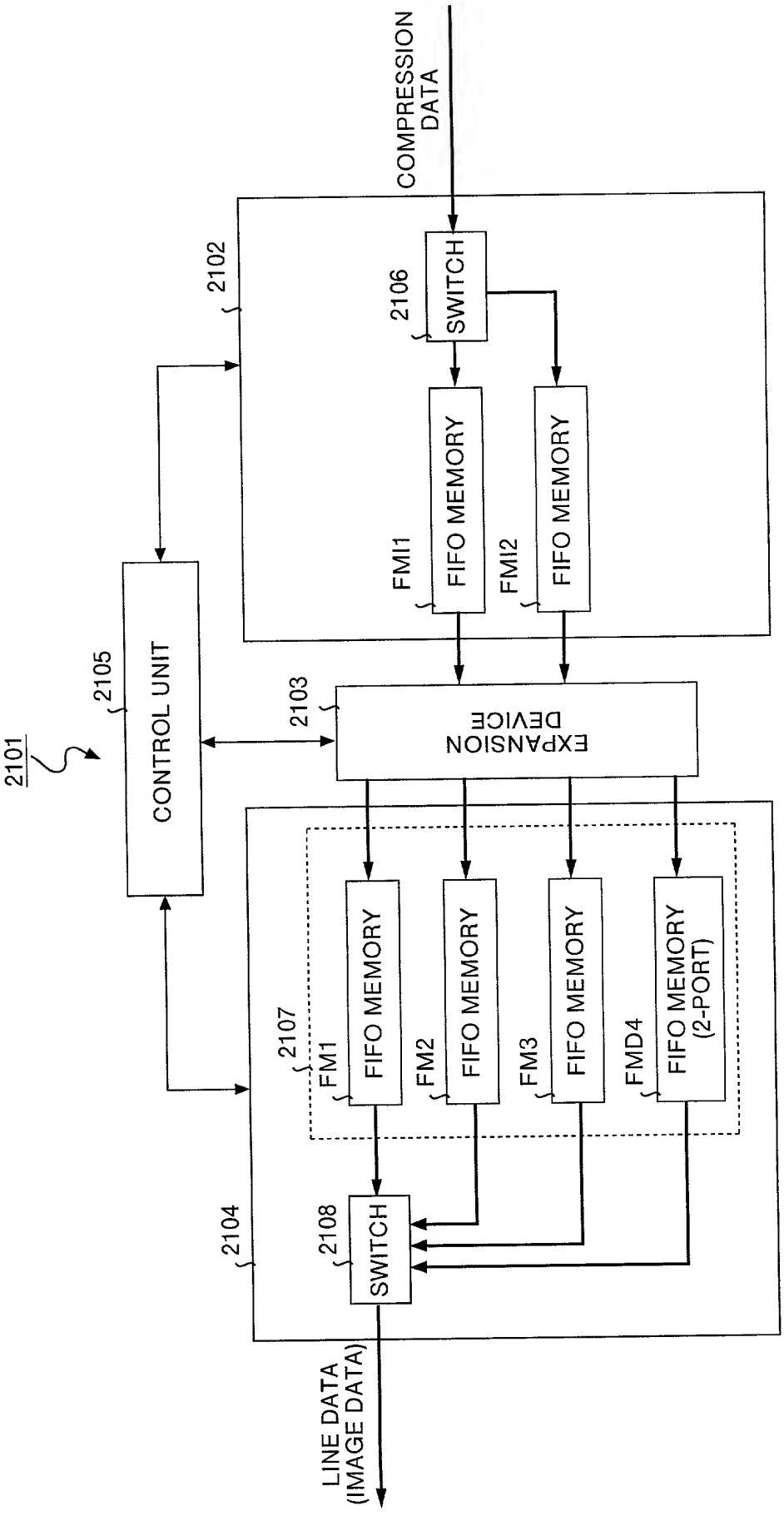


FIG.21


2101
2102
2103
2104
2105
2106
2107
2108
CONTROL UNIT
EXPANSION DEVICE
SWITCH
SWITCH
FIFO MEMORY
FIFO MEMORY
FIFO MEMORY
FIFO MEMORY
FIFO MEMORY
FIFO MEMORY (2-PORT)
FMI1
FMI2
FM1
FM2
FM3
FMD4
COMPRESSION DATA
LINE DATA (IMAGE DATA)

PCT/JP03/12263

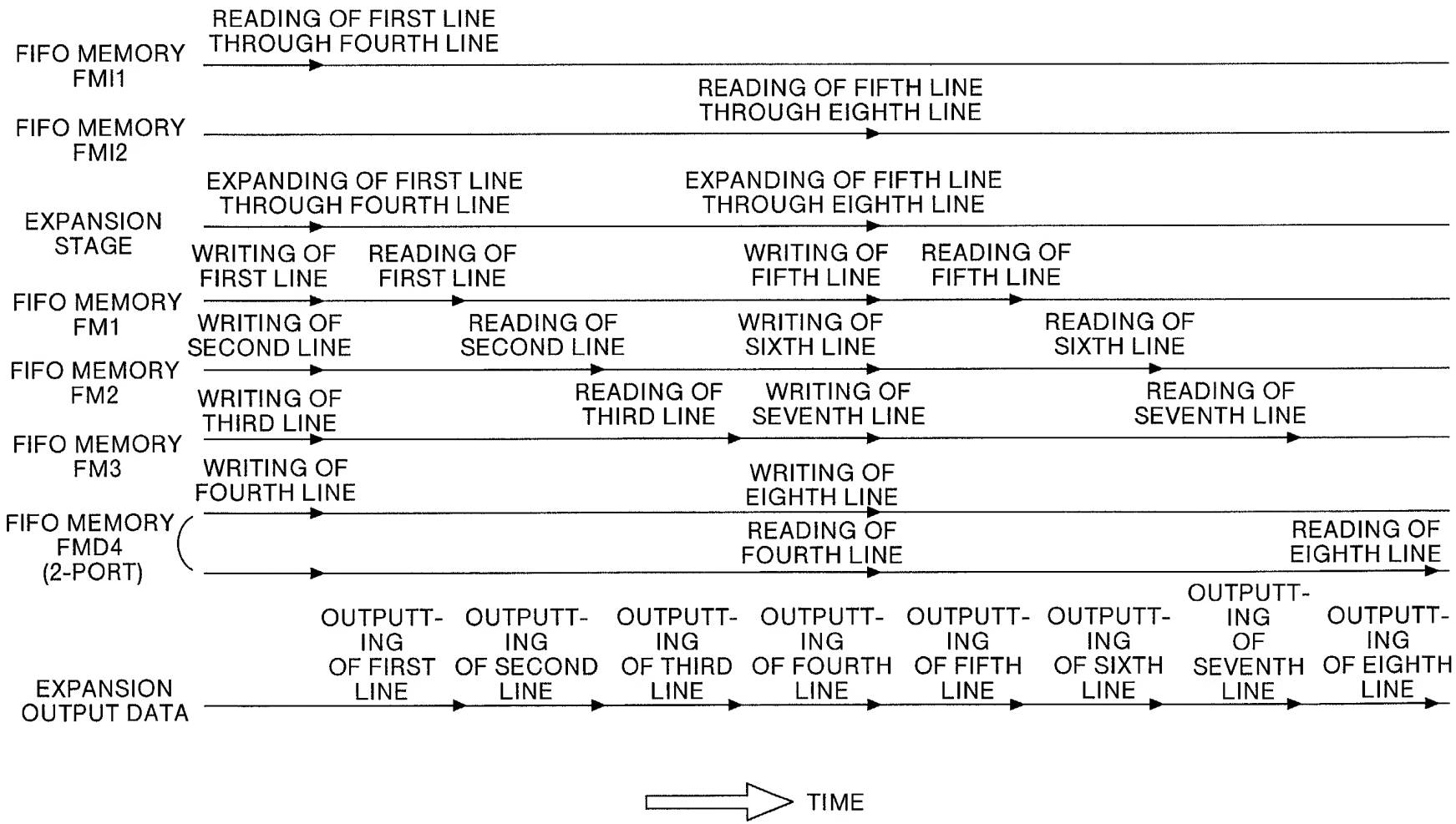



FIG.22